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Recovery after the war is associated with large-scale reconstruction of infrastructure. Anti-crisis post-war management is a process of using forms, procedures and methods of improving the national economy. Railway connections and active use of locomotives should be established in Ukraine. This will make it possible to transport large loads at the lowest possible cost. There is no information on the number, capacity and age structure of locomotives of JSC «Ukrzaliznytsia». Available information on the number of railway carriages, including nationalized and lost due to their stay in Russia at the beginning of the war. Therefore, this study is actual. The war in Ukraine began rapidly and unexpectedly. Treaties with post-Soviet countries and the world were broken. The article examines the negative balance of export-import operations in 2021. Emphasis was also placed on the recovery of Ukraine's economy through the renewal of locomotives and rail services. In the pre-war period there was no economic information about the working locomotives of JSC «Ukrzaliznytsia». Information on current and major repairs of railway carriages is available to scientists. The article considers anti-crisis post-war management as a process of using forms, procedures and methods to restore the infrastructure of the national economy. The aim of the article is to study the importance of railway connections and to outline the range of topical issues. This applies to the possibility of own production of locomotives as an important infrastructure component.

Keywords: anti-crisis management, locomotive, electric locomotive, reconstruction, export, import, own production.

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Formulation of the problem

After the war there is always a large-scale reconstruction of infrastructure. Anti-crisis post-war management is a process of using forms, procedures and methods to rebuild, first of all, the infrastructural component of the Ukrainian economy.

Railway connections and active use of locomotives should be approved in Ukraine. They can transport large loads at the lowest possible cost. There is no information on the number, capacity and age structure of locomotives of JSC «Ukrzaliznytsia». There are data on the number of cars, including those that will be nationalized and lost in Russia. Therefore, this research is relevant.

Analysis and research of publications

Scientists Tkachenko A.M. and Levchenko N.M. [22] consider it necessary to actually implement international obligations before their direct implementation. The problem of innovative development in Ukraine is the inertia of the national economy and insufficient macroeconomic indicators [21]. In the post-war period, the pace of reconstruction and readiness for change will determine prosperity. The development of railway connections should be one of the top priorities. Tikhonova M., Roslyk I., Golovnev S. paid considerable attention to the need for locomotives. They studied the possibilities of own production of locomotives and the situation on the railways.

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However, not all conclusions of the authors are unambiguous and should be revised.

The purpose of the article

The aim of the article is to study the importance of railway connections and the possibilities of own production of locomotives.

Presentation of the main material

Against the background of economic sanctions against the Russian Federation by the United Kingdom, Canada, the European Union, the United States, Australia and Japan [1], the aggressor country began to impose its own restrictions on imports and exports [2]. This attempt is more like an information war within Russia. In addition, a boycott of international goods, services and partnerships with Russia and the Republic of Belarus was announced. As of March 30, 2022, 500 international companies left the Russian and Belarusian markets [3].

European and American companies UPS, FedEx, Maersk and MSC have stopped all shipments to Russia. This will hit businesses and ordinary citizens of the country [3].

The foreign trade turnover between Ukraine and Russia in 2021 amounted to 12.3 billion dollars. This figure increased by 22.8% compared to 2020. In 2020, the total turnover was 10.1 billion dollars: the supply of Russian goods to Ukraine – 6.65 billion, Ukrainian to Russia – 3.44 billion [4]. That is, there was a negative trade balance of more than \$ 3 billion.

In previous years, Russia exported the following products to Ukraine: coal, petroleum products, liquefied gas, coke, diesel fuel, ammonia, polyethylene and polypropylene, glass, solvents, plastics, refrigerators and washing machines [4]. Exports to the Russian Federation included, million dollars: alumina (626), metal products (791), liquid pumps (77), plastic packaging (61), ceramic tiles (46) [4]. The history of alumina exports should be considered in more detail. In 2000, the State Property Fund sold 30% of the shares, and for a few more years another 25%, of the Mykolayiv Alumina Plant (MGZ). These shares were acquired by Ukrainian Aluminum (a subsidiary of PJSC Russian Aluminum) [5].

Thus, the controlling stake was in the hands of a Russian company. At the same time, PJSC «Zaporizhzhya Aluminum Plant» also becomes the property of the Russian side under a similar scheme [6]. This will eventually lead to the artificial suspension of its activities in order to suppress a competitor. This led to a decrease in the number of jobs in Zaporizhia and an environmental catastrophe in Mykolayiv (cancer) [7]. Examination of the Kyiv Research Institute of Forensic Examinations revealed

a number of hazardous substances in the red sludge waste of the Mykolayiv Alumina Plant. This threatens the lives and health of residents and has an extremely negative impact on the environment [8]. The Mykolayiv alumina plant appealed through court penalties. From February 28 of the current year the Mykolayiv alumina plant because of military aggression of the Russian Federation and impossibility of shipment of finished goods began on recirculation [9].

Ukraine must completely abandon export-import relations with Russia and Belarus. When rebuilding Ukraine, the priority is infrastructure (including rail transport). Since 2008, Ukraine has continued to purchase locomotives and their components from Russia. PJSC «Zaporizhstal» (Metinvest Group) has modernized 8 locomotives over the past few years for a total of about UAH 100 million. The plant has overhauled 6 locomotives of the TGM4 series (Lyudinovsky Locomotive Plant, Russia) and TEM2 (Bryansk Machine-Building Plant, Russia). Both types of locomotives are no longer produced and components are available only in Russia (purchases could be made through Belarus). Locomotives and their components were purchased by JSC Ukrzaliznytsia (through cooperation with enterprises from Russia). There are 3.6 thousand locomotives in the park of JSC Ukrzaliznytsia [13]. Their purchase is connected with the desire to renew the locomotive fleet. The locomotive fleet of JSC Ukrzaliznytsia is currently worn out by approximately 94.7% [13-15]. Information sources [13] provide data on the number of freight, passenger and shunting electric and diesel locomotives and their age structure. However, it is not possible to check the compliance of the data on the website of JSC Ukrzaliznytsia.

JSC Ukrzaliznytsia estimates the need for investment in locomotive upgrades at UAH 73 billion. Of this, UAH 13 billion needs to be invested in the renewal of the locomotive fleet. UAH 60 billion should be invested in the purchase and modernization of electric locomotives.

In 2021, the Russian Railways purchased 535 new locomotives (566 in 2020 [18]) worth more than 92.2 billion rubles (32.5 billion UAH). This company purchased 258 locomotives (including 4 passenger). 46 new locomotives of the 3TE25K2M series were purchased in the Russian Federation. This is a powerful locomotive for operation in harsh climates. In total, the Russian network in 2021 received 176 shunting locomotives [17].

Diesel locomotives are autonomous locomotives with an internal combustion engine. From the first half of the twentieth century to this day, diesel

locomotives are a cost-effective addition to electric locomotives. Diesel locomotives are still profitable on the railway. The power of locomotives increased gradually from several hundred horsepower to 6000-12000 [12]. Diesel locomotives will continue to be built and used both in Ukraine and around the world. This is evidenced by the geography of production capacity. The question of the possibility of own production of this transport remains problematic for Ukraine. Roslik I. and Golovnev S. argue that this is almost impossible [13]. JSC Ukrzaliznytsia has signed memoranda of cooperation and mutual understanding with almost all the world's leading locomotive manufacturers. Here is a list of these companies: General Electric (USA) [14, p. 54, 80, 149], Toshiba (Japan), CRRC (China) [14, p. 80; 15, p. 110], Alstom (France) [14, p. 80; 15, p. 110], Siemens (Germany) [14, p. 80], Bombardier (Canada) [12, p. 80]. In Ukraine, several companies have experience in the production of locomotives. Among them are the Kryukiv Carriage Building Plant in Kremenchuk, the Luhansk Diesel Locomotive Plant and the Dnipro Electric Locomotive Plant JSC in the city of Dnipro [21]. Kryukiv Carriage Building Plant has experience in the production of passenger locomotives and individual repairs of freight locomotives [19]. Luhansk enterprise has not been operating since 2015, and the equipment has been moved to Russia) [20].

Kryukiv Carriage Building Plant does not have enough specialists and facilities to meet domestic demand. Dnipro Electric Locomotive Plant is in decline. Therefore, Ukrzaliznytsia is forced to buy products abroad. This industry is difficult to rebuild due to high competition and costs.

Conclusions

The author proposes the following algorithm:

1. Monitoring of existing locomotives (not only wagons) and probable production facilities.
2. Nationalization of enterprises and other assets owned by. In order to avoid corruption schemes, representatives of the world community should be involved in this process. The process should start with the freezing of assets and the announcement of suspicion. This process should be as open as possible.
3. The construction of new locomotive productions on the basis of AvtoZAZ or tram park depot is justified by the following factors: industrial region, infrastructure, a large number of specialists, the influx of refugees who need jobs and experience in industrial regions.
4. Signing agreements with global locomotive manufacturers to provide relevant technologies and participate in the capital. One of the important points

should be insurance against military aggression, subversive activities and adverse changes in the legislative field.

5. Revision of the 2030 Strategy in accordance with the changes.

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АНТИКРИЗОВИЙ ПОВОЄННИЙ МЕНЕДЖМЕНТ НА ПРИКЛАДІ ЛОКОМОТИВНОГО РУХОМОГО СКЛАДУ

Пожуєва Т.О.

Відновлення після війни завжди відбувається з масштабної відбудови інфраструктури. Антикризисний повоєнний менеджмент — це процес використання форм, процедур і методів щодо оздоровлення національного господарства, створення і розвитку відповідних умов для виходу з кризи шляхом відбудови в першу чергу інфраструктурної складової. Одним з головних напрямів при цьому в Україні має стати налагодження залізничного сполучення та активне використання локомотивів, оскільки вони зможуть перевозити великі вантажі з мінімально можливими витратами, що значно прискорить цей процес. Нажаль дані щодо кількості, потужності та вікової структури локомотивів АТ «Укрзалізниця» не надає і складається враження про відсутність релевантних даних, що за умов пострадянської спадщини не дивно. Є дані щодо кількості вагонів, у тому числі таких, що буде націоналізовано і таких, які ми втратимо через їх перебування на території РФ на початок війни. Тому дане дослідження є актуальним. Війна в Україні розвернулася стрімко і неочікувано. Договори з пострадянськими країнами та світом було зірвано, про що свідчить невідготованість провідних підприємств до такого розвитку подій. У статті розглядається від’ємне сальдо експортно-імпорتنних операцій за 2021 рік та зроблено акцент на тому, що відновлення економіки нашої держави має спиратись перш за все на поновлення залізничного сполучення та відповідно на локомотиви. Зроблено наголос на тому, що це у довоєнний час обгрунтовані дані щодо робочих локомотивів, їх вікової структури не знайшли відображення у звітах АТ «Укрзалізниця», також їх не вдалось вирахувати виходячи із інших офіційних джерел (є лише дані щодо поточних і капітальних ремонтів окремих одиниць). Таким чином, стаття розглядає антикризовий повоєнний менеджмент як процес використання форм, процедур і методів щодо оздоровлення національного господарства, створення і розвиток відповідних умов для виходу з кризи шляхом відбудови в першу чергу інфраструктурної складової. Метою статті є дослідження важливості залізничного сполучення та окреслення кола актуальних питань, зокрема щодо можливостей власного виробництва локомотивів як важливої інфраструктурної складової.

Ключові слова: антикризовий менеджмент, тепловоз, електровоз, відбудова, експорт, імпорт, власне виробництво.

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**АНТИКРИЗИСНИЙ ПОСЛЕВОЕННИЙ
МЕНЕДЖМЕНТ НА ПРИМЕРЕ ЛОКОМОТИВНОГО
ПОДВИЖНОГО СОСТАВА****Пожуєва Т.А.**

Восстановление после войны связано с масштабной реконструкцией инфраструктуры. Антикризисное послевоенное управление представляет собой процесс использования форм, процедур и методов оздоровления народного хозяйства. В Украине необходимо наладить железнодорожное сообщение и активно использовать локомотивы. Это позволит перевозить большие грузы с минимальными затратами. Информация о количестве, мощности и возрастном составе локомотивов АО «Укрзалізниця» недоступна. Имеются сведения о количестве вагонов, в том числе национализированных и потерянных в связи с их пребыванием в России в начале войны. Поэтому данное исследование является актуальным. Война на Украине началась стремительно и неожиданно. Нарушены договоры с постсоветскими странами и миром. В статье рассмотрено отрицательное сальдо экспортно-импортных операций в 2021 году. Авторы акцентировали внимание на восстановлении экономики Украины за счет обновления локомотивов и железнодорожного сообщения. В довоенный период отсутствовала экономическая информация о работающих локомотивах ОАО «Укрзалізниця». Информация о текущем и капитальном ремонте железнодорожных вагонов доступна ученым. В статье антикризисное послевоенное управление рассматривается как процесс использования форм, процедур и методов восстановления инфраструктуры народного хозяйства. Цель статьи – изучить значение железнодорожного сообщения и обозначить круг актуальных вопросов. Это касается возможности собственного производства локомотивов как важной инфраструктурной составляющей.

Ключевые слова: антикризисное управление, тепловоз, электровоз, реконструкция, экспорт, импорт, собственное производство.

**ANTI-CRISIS POST-WAR MANAGEMENT ON THE
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Recovery after the war is associated with large-scale reconstruction of infrastructure. Anti-crisis post-war management is a process of using forms, procedures and methods of improving the national economy. Railway connections and active use of locomotives should be established in Ukraine. This will make it possible to transport large loads at the lowest possible cost. There is no information on the number, capacity and age structure of locomotives of JSC «Ukrzaliznytsia». Available information on the number of railway carriages, including nationalized and lost due to their stay in Russia at the beginning of the war. Therefore, this study is actual. The war in Ukraine began rapidly and unexpectedly. Treaties with post-Soviet countries and the world were broken. The article examines the negative balance of export-import operations in 2021. Emphasis was also placed on the recovery of Ukraine's economy through the renewal of locomotives and rail services. In the pre-war period there was no economic information about the working locomotives of JSC «Ukrzaliznytsia». Information on current and major repairs of railway carriages is available to scientists. The article considers anti-crisis post-war management as a process of using forms, procedures and methods to restore the infrastructure of the national economy. The aim of the article is to study the importance of railway connections and to outline the range of topical issues. This applies to the possibility of own production of locomotives as an important infrastructure component.

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